VITIS AESTIVALIS

V. aestivalis Summer Grape. Very tall vigorous climber: leaves rusty-tomentose or cobwebby on under side of the large soft lobed leaves: fruit 1/3 inch in diameter, glabrous, black. New England to Florida and Kansas. - Norton Virginia grape is supposed to be a derivative. -- Hortus Second, 1941

V. aestivalis Michx. Leaf blades varying from broader than long to longer than broad, 1-3 dm in diameter, angularly or deeply 3-5-lobed, shallowly toothed, dull green and glabrate above, more or less densely, often unevenly, cobwebby or flocculent beneath, with rusty or brown hairs, cordate: petioles usually glabrous: panicles 1-2.5 dm long, often conspicuously elongate and rather simple: berry globose, 8-10 mm in diameter, black, under a bloom, with a tough skin, and pulp varying from sweet to very astringent. (Summer Grape, Pigeon Grape). Thickets and rocky places, various provinces, Florida to Texas, Kansas, and New Hampshire.
-- Manual of the Southeastern Flora by J. K. Small, 1933

Vitis aestivalis Michaux, Flora bor. Amer. 2 p. 230

Synonyms:

V.Lacinosa and vinifera, var. Americana, Marsh, Arbust pp 165-6
V. labrusca, Walter, p. 243
V. vulpina, Poir, Dist. 8, p 607
V. vulpina, Jacq. Hort. Schoenb, 4, 13, t 425 vide Regel
V. labrusca, Planch. l.c. 109
V. Virginiana, Poir. Dist. 8, 608
V. intermedia and labruscoides, Muhl. Cat. 26

"Summer grape" in Tennessee, Virginia, Georgia, etc.; "Pigeon grape" in New Jersey; "Winter grape" in New York.

Plant: Medium to tall, climbing 30 to 50 feet; branches somewhat tapering; tips quite naked, that is, not enveloped in slowly opening leaves, as in V. vulpina.

Roots: Little fibrous, rather hard, penetrating, transversely wrinkled; in one year seedlings enlarging downward from collar.

Wood: Cylindrical, rusty wooly when young, becoming smooth, bright reddish brown on maturity, with little prunose bloom near the joints and frequently on vigorous growing shoots thinly beset with spinous pubesence as in V. labrusca; finely and evenly striated, hard and dense, less than V.Lincecumii; nodes enlarged under the bud, little enlarged on the opposite side; diaphragm 1/10" to 1/8" thick, biconcave: bud globose-conical, obtuse in young shoots, acute in mature, covered with reddish-brown scales with reddish wool at summit in expanding, medium, red rusty, open tip, pinkish; tendrils intermittent, once or sometimes twice forked, long, tomentose when young, persistent, strong; Internodes medium to long, 2" to 4" or even to 6" or more; pith medium, considerably enlarged at lower end, light brown.

Leaves: Stipules small, 1/16" to 1/12" long, rather narrow, rusty wooly; petiole usually a little less than half as long as width of blade, cylindrical, obscurely striated with narrow shallow groove above, obscured with pubesence or rusty wool, or both; blade 4" to 7" in length, similarto V. Lincecumii in general outline or more cordate; basal sinus deep acute inverted V-shaped to broad V shaped, approaching, sometimes lapping, generally short, obtuse or acute; often 5 rarely

VITIS AESTIVALIS

V. aestivalis Summer Grape. Very tall vigorous climber: leaves rusty-tomentose or cobwebby on under side of the large soft lobed leaves: fruit 1/5 inch in diameter, glaucous, black. New England to Florida and Kansas. - Norton Virginia grape is supposed to be a derivative. -- Hortus Second, 1941

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Synonyms:

V. labrusca and vinifera, var. Americana, Werth, Arbeit ob 165-6
V. labrusca, Reiter, p. 243
V. vulpina, Poir. Diet. 8. p 607
V. vulpina, Jacq. Hort. Schoenb. 4, 15, t 425 vide Regel
V. labrusca, Planch. l.c. 109
V. Virginiana, Poir. Diet. 8, 608
V. intermedia and labruscoides, Wahl. Cat. 16

"Summer grape" in Tennessee, Virginia, Georgia, etc.; "pigeon grape" in New Jersey; "Winter grape" in New York.

Plant: Medium to tall, climbing 20 to 30 feet, branches somewhat tapering: tip quite naked, that is, not enveloped in slowly opening leaves, as in V. vulpina

Node: Little fibrous, rather hard, penetrating, transversely wrinkled: in one year nodelines enlarging downward from collar.

Rood: Cylindrical, rusty woolly when young, becoming smooth, bright reddish from a maturity, with little grooves bloom near the joints and frequently on vigorous growing shoots thinly beset with spinous outgrowths as in V. labrusca: finely and evenly striated, hard and dense, less than V.linnaeanii; nodes enlarged under the bud, little enlarged on the opposite side: diaphragm 1/10" to 1/8" thick, biconcave: bud globose-conical, obtuse in young shoots, acute in mature, covered with reddish-brown scales with reddish wool at summit in exceptions, medium, red rusty, open tip, winkles; tendrils intermittent, once or sometimes twice forked, long, tomentose when young, persistent, strong: internodes medium to long, 3" to 4" or even to 8" or more; pith medium, considerably enlarged at lower end, light brown

Leaves: Stipules small, 1/16" to 1/12" long, rather narrow, rusty woolly: petiole usually a little less than half as long as width of blade, cylindrical, obscurely striated with narrow shallow groove above, obscured with pubescence or rusty wool, or both; blade 4" to 7" in length, slightly V. linnaeanii in general outline or more cordate: basal sinus deep acute inverted V-shaped 2/3 broad 2 shaped, overreaching, sometimes lapping, generally short, obtuse or acute; often 3 rarely

Vitis aestivalis (cont.)

3-lobed, lobes mostly acute, approaching around the rounded, rarely or never toothed lateral sinus; teeth usually small, little elevated, slightly convex, with little or no mucron, notch between, obtuse or scalloped; venation, from the 7 or 8, generally not quite opposite pairs of ribs, rather prominent; ribs generally both pubescent and rusty wooly with pubescent tufts in forks; blade in unfolding rusty wooly, upper surface rusty hairy along veins when young, smooth and leathery rugose with maturity, of a dark, moderately lively green color; lower side between ribs thinly or flocculently red rusty wooly. Ground shoots from old plants beautifully 5 to 9 lobed, being palmate, much as in V. Lincecumii.

Cluster: From 4" to 8" long, cylindrical, generally simple or with a moderate shoulder and often a false tendril, the peduncle generally long; rachis pale cottony; pedicels thick, ¼" long, enlarged toward receptacle, with a few small warts.

Flowers: Stamens in fertile flowers reflexed and bent laterally, stamens and pistil more slender than in V. Lincecumii, self-sterile.

Berries: ¼" to ½" in diameter, small, spherical or oblate, black, with bloom when ripe, persistent; skin thin, tough, with much coloring matter; pulp commonly dry, tough, acid, and astringent, occasionally somewhat tender, juicy, rich in sugar.

Seeds: 2 to 4, 1/6" to ¼" long, by 1/8" to 1/6" broad; ovate, light to dark cinnamon color; beak usually short, blunt, poorly defined, rarely sharp and distinct,- when sharp and defined it generally indicates a mixture with some other species as in Norton Virginia, which has a seed strongly resembling V. Cinerea. Raphe medium or inconspicuous as it passes top of seed, sometimes disappearing at the top but usually at or a little below the middle or inner face of the seed; chalaza generally small, circular or ovate at middle or above back of seed, surrounded by a shallow groove which extends over top of seed, in some cases making it appear slightly lobed, indicating admixture with V. labrusca; depressions shallow irregular in depth, usually wide apart; color little different from body of seed.

Plantlet: Cotyledons small, ovate acute, green.

It is found sparingly in New York as "Winter Grape", more plentifully in New Jersey as "Pigeon Grape", in both of which regions it approaches V. bicolor closely. It occurs in its purest form chiefly south of the Potomac river and Cumberland mountains of Tennessee towards the Gulf, east of the Mississippi river. From Maryland to western New York there is a gradual transition to V. bicolor, and a similar transition takes place between Middle Tennessee and Michigan and Wisconsin. It grows naturally on high, sandy loamy, or sandy clay soils.

V. aestivalis possesses properties that render its better varieties very valuable in the regions where fungus diseases prevail, on account of its great resistance to such diseases, and its high percent of sugar.

-- Excerpts from "Foundations of American Grape Culture" by T. V. Munson 1909.

5-lobed, lobes mostly acute, approaching around the rounded, rarely or never toothed lateral sinus; teeth usually small, little elevated, slightly convex, with little or no mucron, notch between, obtuse or acuminate; venation, from the 7 or 8, generally not quite opposite pairs of ribs, rather prominent; ribs generally both pubescent and rusty woolly with pubescent tufts in forks; blade in maturing rusty woolly, upper surface rusty hairy along veins when young, smooth and leathery rugose with maturity, of a dark, moderately lively green color; lower side between ribs thinly or flocculently red rusty woolly. Ground about from old plants beautifully 5 to 9 lobed, being palmate, much as in V. linsecomii.

Cluster: From 4" to 8" long, cylindrical, generally simple or with a moderate shoulder and often a false tendril, the peduncle generally long; rachis pale cottony; pedicels thick, ½" long, enlarged toward receptacle, with a few small warts.

Flower: Stamens in fertile flowers reflexed and bent laterally, stamens and pistil more slender than in V. linsecomii, self-sterile.

Berries: ½" to ¾" in diameter, small, spherical or oblate, black, with bloom when ripe, persistent; skin thin, tough, with much coloring matter; pulp commonly dry, tough, acid, and astringent, occasionally somewhat tender, juicy, rich in sugar.

Seeds: 2 to 4, 1/8" to ¼" long, by 1/8" to 1/6" broad; ovate, light to dark cinnamon color; beak usually short, blunt, poorly defined, rarely sharp and distinct,- when sharp and defined it generally indicates a mixture with some other species as in Norton Virginia, which has a seed strongly resembling V. Cinerea. Raphe medium or inconspicuous as it passes top of seed, sometimes disappearing at the top but usually at or a little below the middle or lower face of the seed; chalazae generally small, circular or ovate at middle or above back of seed, surrounded by a shallow groove which extends over top of seed, in some causes making it appear slightly lobed, indication admixture with V. labrusca; depressions shallow irregular in depth, usually wide apart; color little different from body of seed.

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Plant: Medium to tall, climbing 30 to 50 feet; branches somewhat tapering; tips quite naked, that is, not enveloped in slowly opening leaves, as in V. vulpina.

Roots: Little fibrous, rather hard, penetrating, transversely wrinkled; in one year seedlings enlarging downward from collar.

Wood: Cylindrical, rusty wooly when young, becoming smooth, bright reddish brown on maturity, with little prunose bloom near the joints and frequently on vigorous growing shoots thinly beset with spinous pubesence as in V. labrusca; finely and evenly striated, hard and dense, less than V.Lincecumii; nodes enlarged under the bud, little enlarged on the opposite side; diaphragm 1/10" to 1/8" thick, biconcave: bud globose-conical, obtuse in young shoots, acute in mature, covered with reddish-brown scales with reddish wool at summit in expanding, medium, red rusty, open tip, pinkish; tendrils intermittent, once or sometimes twice forked, long, tomentose when young, persistent, strong; Internodes medium to long, 2" to 4" or even to 6" or more; pith medium, considerably enlarged at lower end, light brown.

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VITIS AMURENSIS

V. amurensis Strong vine with the look of V. cordifolia but leaves more or less 3-lobed and the basal sinus very broad and shallow: fruit about 1/3 inch across, black. Manchuria. - Grown for ornament, the leaves highly colored in autumn.
-- Hortus Second 1941.

Dr. Magoon.
rec.

THE AMUR WILD GRAPE

by

F. G. Whittick (deceased-aar)

Manchuria is rich in berries of various kinds, but not in larger fruits. The wild grape, however, is found in many parts of the country and the Ussari Region, its limit being as far north as the Amur and Zei Rivers and south to the Liaotung Peninsula.

A few particulars may be given as to the seeds, the leaves, and the grape itself. The seed is of a reddish-brown color, oval to circular in shape and ending in a sharp point. There are usually two seeds in each grape but there may be three or four. The leaf is trefoil, the part towards the tip being elongated, and the base heart-shaped with a deep cut up the middle. The shape and colour of the leaf vary greatly. The grapes are roundish, when unripe are green in color, and, on ripening, take on a blue-black hue. A sort of waxy bloom covers the grape when in a ripe condition. The skin is rather tough and resilient. A peculiarity of the Amur grape is that it is lacking in saccharine quality and is acidulous. Where the grape grows in dry places the fruit is sweeter than that growing in damp soil or in elevated parts.

The wild Amur grape has many varieties, differing mainly in the tendrils and in the distance between the shoots, in the shape and colour of the leaf, the flower clusters, the size of the grape, the shape and quality of the seed and the sweetness of the fruit. Where there are rich clusters of fruit the grape is sweetest. The climbing vines that grow in the forest regions have rich clusters measuring from six to eight centimetres in length, and the fruit is round and sweet, its diameter varying from six to thirteen millimetres. Smaller plants growing on stony hillsides are productive and bear small but compact clusters of fruit.

The periods of development of the Amur grape are as follows: The bud begins to burst from the fifth to the twenty-eight of May. Flowers appear from the third to the thirteenth of July. Flowering ends from the fifteenth to the twenty-fifth of August. Ripening begins from the tenth of August to the twentieth of September. The leaf begins to fade from the second to the thirtieth of September or the first of October and it begins to fall from the tenth of September to the fifteenth of October.

Whereas all European or other grape vines perish from the frosts, THE AMUR grape stands the local severe climate most admirably. It is left without any covering during the winter in local gardens. The roots of the plants have never been known to perish from frost, and only during the most severe winter have the tops of the younger shoots been known to freeze.

During the first two years after transplanting the vine grows very slowly, but the third year is marked by a rapid and luxurient growth. Transplanting therefore retards growth. The plants must be carefully watered and the soil enriched during the first two years or the plants may die. In certain Harbin gardens, the fruit is so rich as not to be inferior in size to the variety of American grape known as "Isabella".

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F. S. Whittier (deceased-ear)

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VITIS AMURENSIS

V. amurensis Strong vine with the look of V. cordifolia but leaves more or less 3-lobed and the basal sinus very broad and shallow: fruit about 1/3 inch across, black. Manchuria. - Grown for ornament, the leaves highly colored in autumn. -- Hortus Second 1941.

VITIS ARGENTIFOLIA

V. argentifolia (V. bicolor of many authors. V.Leconteana) Blue Grape. Much like V. aestivalis, differing particularly in leaves more or less glaucous underneath and glabrous and absence of rusty wool on young growths, and fruit not usually as large. New England to Ontario and Michigan and South.

-- Hortus Second 1941

VITIS ARGENTIFOLIA

V. argentifolia (V. bicolor of many authors. V.Leconteana) Blue Grape.
Much like V. aestivalis, differing particularly in leaves more or less glaucous underneath and glabrous and absence of rusty wool on young growths, and fruit not usually as large. New England to Ontario and Michigan and South.

-- Hortus Second 1941

VITIS ARIZONICA

V. arizonica Canyon Grape. Low, scarcely climbing, the tendrils mostly perishing if not attached to support, the internodes short: leaves rather small, broad-ovate with wide open sinus, usually only indistinctly lobed if at all, cobwebby when young: fruit about 1/3 inch across, black. West Texas to California and Mexico.

Hortus Second, 1941.

Vitis arizonica, Engelmann, in Am. Nat. 2, pp 321 and 268

Synonyms:

V. aestivalis, var. Gray, Pl. Wright 2, 27
V. aestivalis, Torrey, Pac. R. Rep. 7,9

Plant: In specimens from western Texas on the Rio Grande and Arizona, weak, much branched, like V. rupestris, little climbing, slender, tapering rapidly, angled when young, and cottony, remaining so first season, obscurely striated, - still less than in V. rupestris. Growing tips slightly or not at all enveloped in expanding leaves. The gray cottony hairs upon the leaves give the entire plant a dull ashy appearance.

Roots: Slender, wiry, little transversely wrinkled, in one year seedlings axial, tapering from collar downward.

Wood: Mature bark dark, almost black, cracks after first year and separates into thin, fragile, non-fibrous plates; mature wood very dense and hard; nodes scarcely at all enlarged, mostly straight, diaphragm 1/12",- about the same as in V. rupestris,- biconcave; buds small, but large proportionately to branch, globose, whitish, wooly both when dormant and expanding; tendrils mostly once or twice forked, small, about the same length as leaves, cottony, deciduous first year if not clinging to some support, then holds weakly; internodes very short, $\frac{3}{4}$" to $2\frac{1}{2}$" long.

Leaves: Stipules 1/12" to 1/16" long, thinly cottony. Petiole half as long as the blade is wide, cylindrical, distinctly or faintly grooved on upper side, faintly striate, usually pubescent and cottony; like the tendrils and young wood, dark red when young appearing dull under the cotton, set at acute or right angle with blade; blade $1\frac{1}{2}$" to 4" wide by same in length; generally beautifully and regularly cordate, sometimes slightly acute lobed; basal sinus usually quite broad, at insertion of petiole, in the more cordate forms, sinus inverted U shaped with limbs partly closing around it; margin curving toward back of leaf, causing upper surface to be somewhat convex; rarely lobed, teeth broad, usually shallow, acute to rarely right angled, mostly convex, sometimes straight on margin, with a very acute or mucronate point; margins of teeth pubescent; venation from the generally 6, rarely 5 or 7, pairs of nearly opposite ribs, with little or no prominence; usually pubescent along the ribs and with pubescent tufts in forks of ribs; surfaces generally covered with gray cottony hairs, giving a dull ashy appearance; color dark dull green; texture very dense in its native, dry regions; thin and fragile at Denison, Texas. Leaves of seedling first year, entire.

V. californica Canyon grape. Low, scarcely climbing, the tendrils mostly persisting if not attached to support, the internodes short; leaves rather small, broad-ovate with wide sinus, usually only indistinctly lobed if at all, sometimes when young; fruit about 1/3 inch across, black. Foothills to California and Mexico.

Morris Canon, 1941.

Vitis rotundifolia, Bayleaman, in Am. Nat. 5, pp 321 and 328

Synonym:

V. aestivalis, var. Gray, Pl. Wright 2, 67
V. aestivalis, Torrey, Pacific R. R. Rep. 7, 2

Plants: In specimens from western Texas on the Rio Grande and Arizona, very much branched, Vitis V. riparia, Little climbing, slender, flowering rapidly, angled when young, and cottony, remaining so first season, ultimately stainless, still less than in V. riparia. Growing tips slightly or not at all embrowned in expanding leaves. The grey cottony hairs upon the leaves give the entire plant a dull ashy appearance.

Bodies: Slender, wiry, little transversely wrinkled, in one year nodilings small, [illegible] from collar downward.

Wood: Mature bark dark, almost black, cracks after first year and peels [illegible] Pith, non-chlorine I test; mature wood very dense and [illegible]; nodes all enlarged, mostly thickened, diaphragm 1/16"- about the same as in [illegible]- internodes; buds small, but large proportionately to branch, globose, [illegible] mostly both when dormant and expanding; tendrils mostly once or twice forked, small, about the same length as leaves, cottony, persistent first year if [illegible] to some support. Stem nodes [illegible] internodes very short, 1/4 to 3/4 [illegible]

Stipules 1/16 to 1/8" long, widely ovate-[illegible] Petiole half or longer than [illegible], cylindrical, distinctly or faintly grooved on upper side, [illegible] usually pubescent and cottony; like the tendrils and young wood, young appearing dull under the cottony, not shining or right angle [illegible] to 4" wide by more so long, but generally [illegible] and [illegible] sometimes slightly [illegible] sinus usually quite broad, [illegible] to the more [illegible] the [illegible] sinus, sinus lanceolate V shaped with [illegible] usually [illegible] a narrow to broad back of leaf, crushing [illegible] usually lobed, teeth broad, usually shallow, some [illegible] measures [illegible] in length, with a very [illegible] pubescence varying from thin generally [illegible] opaque white, with little or no [illegible] pubescent [illegible] or [illegible]; [illegible] cotton [illegible], [illegible] a [illegible] [illegible] [illegible] in dry in [illegible] dry regions; [illegible] and [illegible] seasons [illegible], [illegible].

Cluster: Similar to that of V. vulpina, but smaller, peduncle and rachis cottony, pedicels 1/8" long, slender.

Flowers: Fertile,- stamens recurved; disc distinct, lobed; ovary globose; style short, thick; stigma broad; staminate,- stamens ascending, slender, pollen grains small.

Berries: Very small, round or ovate, with little bloom; vinous flavor, very sweet, good quality.

Seeds: 1 to 3, usually 2; 1/6" to 1/5" long by 1/6" to 1/8" broad; oval or broadly obcordate, very variable; color pale pinkish-purple; beak very short and blunt or small and acute, well defined; raphe obscure or prominent, becoming a fine distinct thread to the beak; chalaza narrow, in a rather deep basin, its face elevated often, or depressed, so as to appear nearly obsolete, often a mere rim or crescent at base, sometimes invisible, groove extends to or over top of seed; ventral depressions short, rather wide apart, shallow.

Plantlet: Seed-leaves medium to large, ovate, acute, green.

It was obtained for me at, or rather in the mountains 30 miles north of Phoenix, Arizona, by Dr. Turner: at Chloride, New Mexico, by Mr. Parker, and near Prescott, Arizona, in the Bradshaw Mountains, by Mr. D. Hatz. No wild or artificial hybrids are yet known to the writer, nor does there seem to be much of value in the species. It endures cold and drought well, but excessive moisture injures it, causing mildew and rot. It grows better in sandy than heavy soils. It grows easily from cuttings.

Excerpt from "Foundations of American Grape Culture" by T. V. Munson 1909.

Glumes: Similar to those of V. vulgaris, but smaller, pedunculate [illegible] pedicels 1/8" long, slender.

Florets: Fertile - stamens reduced, like distinct, lobed, [illegible] style short, thick; stigma broad; sterile - stamens [illegible], slender, pollen [illegible].

Caryopsis: Very small, round or [illegible], with little bloom; [illegible] very sweet, good quality.

Culms: 1 to 3, usually 2; 1/8" to 1/4" long by 1/8" to 1/8" broad; oval or broadly [illegible], very variably; color pale [illegible] with short and blunt or small and [illegible] sometimes [illegible], becoming a fine [illegible] thread in the [illegible], [illegible] in a rather deep basin, [illegible] elevated often, or depressed, so as to appear nearly [illegible], often a mere [illegible] [illegible] inconspicuous, rather wide spread, [illegible] to or over top of scale; [illegible] depressions [illegible], rather wide spread, [illegible].

Plant: [illegible] Seed-leaves [illegible] so large, [illegible], [illegible].

It was obtained for us at, or rather in the mountains 50 miles north of Phoenix, Arizona, by [illegible] Torrey at Chloride, New Mexico, by [illegible] Parker, and near Prescott, Arizona, in the Tonto Mountains, by [illegible] Hale. We will [illegible] [illegible] [illegible] known to the writer, nor does there seem to be much of value in the [illegible]. It endures cold and drought well, but excessive moisture [illegible] [illegible], overlying [illegible] and [illegible]. It grows better in sandy than heavy soils. It grows easily from [illegible].

Extract from "Foulkes's Gen. of American Grasses Cultivated" by T. V. Munson 1900.

VITIS ARIZONICA

V. arizonica Canyon Grape. Low, scarcely climbing, the tendrils mostly perishing if not attached to support, the internodes short: leaves rather small, broad-ovate with wide open sinus, usually only indistinctly lobed if at all, cobwebby when young: fruit about 1/3 inch across, black. West Texas to California and Mexico.

Hortus Second, 1941.

Vitis arizonica, Engelmann, in Am. Nat. 2, pp 321 and 268

Synonyms:

V. aestivalis, var. Gray, Pl. Wright 2, 27
V. aestivalis, Torrey, Pac. R. Rep. 7,9

Plant: In specimens from western Texas on the Rio Grande and Arizona, weak, much branched, like V. rupestris, little climbing, slender, tapering rapidly, angled when young, and cottony, remaining so first season, obscurely striated, - still less than in V. rupestris. Growing tips slightly or not at all enveloped in expanding leaves. The gray cottony hairs upon the leaves give the entire plant a dull ashy appearance.

Roots: Slender, wiry, little transversely wrinkled, in one year seedlings axial, tapering from collar downward.

Wood: Mature bark dark, almost black, cracks after first year and separates into thin, fragile, non-fibrous plates; mature wood very dense and hard; nodes scarcely at all enlarged, mostly straight, diaphragm 1/12",- about the same as in V. rupestris,- biconcave; buds small, but large proportionately to branch, globose, whitish, wooly both when dormant and expanding; tendrils mostly once or twice forked, small, about the same length as leaves, cottony, deciduous first year if not clinging to some support, then holds weakly; internodes very short, ¾" to 2½" long.

Leaves: Stipules 1/12" to 1/16" long, thinly cottony. Petiole half as long as the blade is wide, cylindrical, distinctly or faintly grooved on upper side, faintly striate, usually pubescent and cottony; like the tendrils and young wood, dark red when young appearing dull under the cotton, set at acute or right angle with blade; blade 1½" to 4" wide by same in length; generally beautifully and regularly cordate, sometimes slightly acute lobed; basal sinus usually quite broad, at insertion of petiole, in the more cordate forms, sinus inverted U shaped with limbs partly closing around it; margin curving toward back of leaf, causing upper surface to be somewhat convex; rarely lobed, teeth broad, usually shallow, acute to rarely right angled, mostly convex, sometimes straight on margin, with a very acute or mucronate point; margins of teeth pubescent; venation from the generally 6, rarely 5 or 7, pairs of nearly opposite ribs, with little or no prominence; usually pubescent along the ribs and with pubescent tufts in forks of ribs; surfaces generally covered with gray cottony hairs, giving a dull ashy appearance; color dark dull green; texture very dense in its native, dry regions; thin and fragile at Denison, Texas. Leaves of seedling first year, entire.

Cluster: Similar to that of V. vulpina, but smaller, peduncle and rachis cottony, pedicels 1/8" long, slender.

Flowers: Fertile,- stamens recurved; disc distinct, lobed; ovary globose; style short, thick; stigma broad; staminate,- stamens ascending, slender, pollen grains small.

Berries: Very small, round or ovate, with little bloom; vinous flavor, very sweet, good quality.

Seeds: 1 to 3, usually 2; 1/6" to 1/5" long by 1/6" to 1/8" broad; oval or broadly obcordate, very variable; color pale pinkish-purple; beak very short and blunt or small and acute, well defined; raphe obscure or prominent, becoming a fine distinct thread to the beak; chalaza narrow, in a rather deep basin, its face elevated often, or depressed, so as to appear nearly obsolete, often a mere rim or crescent at base, sometimes invisible, groove extends to or over top of seed; ventral depressions short, rather wide apart, shallow.

Plantlet: Seed-leaves medium to large, ovate, acute, green.

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Excerpt from "Foundations of American Grape Culture" by T. V. Munson 1909.

VITIS AUSTRINA

V. austrina (V. Simosonii)

-- Hortus Second, 1941

VITIS AUSTRINA

V. austrina (V. Simosonii)

-- Hortus Second, 1941

VITIS BAILEYANA

V. Baileyana Possum Grape. Slender high climber, densely foliaged: leaves broad-ovate and cordate, mostly 3-lobed near apex, dull, at maturity pubescent on veins underneath: fruit ¼ inch or less in diameter, shining black. West Virginia to Georgia.

--Hortus Second, 1941

V. Baileyana Munson. Leaf blades thinnish but firm, ovate or orbicular-ovate 5-7 cm long, glabrous and somewhat rugose above in age or pubescent on the nerves beneath, toothed, otherwise entire or angularly 3-lobed near the apex, cordate at the base: panicles 8 - 13 cm long, compact: berry globose, 7-10 mm in diameter, black, destitute of bloom or nearly so. Woods and mountainous slopes, Blue Ridge and Appalachain Plateau, Georgia to Alabama and West Virginia.

Manual of the Southeastern Flora by J. K. Small 1933.

Vitis Baileyana, Munson.

Synonyms:

V. Virginiana, Munson. Bull. No. 3 Dep. Agr. 1890 Garden and Forest Oct. 1, 1890, pp474-5

"Possum Grape".

Plant: Slender, rather feeble, though hardy, climbing moderately, much branched; tips of young growing shoots green, or pale pink, with very little pale cottony pubescence, considerably extended beyond fully grown leaves; very leafy, owing to the starting of short lateral branches at almost every node, of a lively clear green, of a tint between V. cordifolia and V. aestivalis, the young wood being of the same shade of green as the under side of the leaves, which is only a shade paler than the upper surface, and in the growing plant the lower surface shows about as much as upper surface, owing to the leaves being partly folded together toward upper surface, thus giving the vine a distinct aspect from all other species, but more like Berlandieri than any other.

Roots: Thickening downward from collar in one year seedlings and sparingly branched, fleshy, transversely wrinkled, resistant to Phylloxera, moderately penetrating, but not sufficiently to endure the Texas climate well.

Wood: Young angled, becoming nearly cylindrical at maturity, or obscurely angled; finely, but irregularly striated, and smooth, the thin cottony pubescence disappearing before close of first season's growth; color when mature pale hazel or light brown; rather softer than in other species of this series; nodes moderately enlarged; diaphragm 1/8" thick, thicker on side next to bud than opposite to it; bud sub-conical, acute, same color as mature annual wood, in unfolding pale brown at first, first appearance of leaves pinkish green, tip closed; tendrils intermittent, mostly bifid, weak, persistent, green when young, with few cottony hairs; internodes short, 1" to 4", seldon more; pith large, enlarged much at lower end of internode; pale brown.

Vitis Baileyana (cont.)

Leaves: Stipules minute, pale rusty; petiole mostly greater in length than half the width of blade, and 2/3 the length of midrib, cylindrical with a distinct narrow groove on upper side, green or pale red, with thin cottony pubesence; of nearly same diameter throughout; blade 2½" to 4" wide by 2½" to 4" from insertion of petiole to apex, cordate in general outline, rarely lobed more than to the extent of two unequal shoulders similarly with V. cinerea, basal sinus narrowly inverted V-shaped, with sides little curved; apex short taper-pointed; teeth irregular, small, short convex, obtuse with distinct mucron; ribs in 7 to 9 nearly opposite pairs, each terminating in the mucron of one of the larger teeth, scarcely at all pubescent, paler green that surface between; both faces generally devoid of pubescent hairs, above moderately wrinkled, not shining and not attacked by the Leaf-folder (Desmia funeralis); persisting to late in the fall.

Cluster: 2½" to 5" long, very compound and compact, having a false tendril at insertion of peduncle, with rachis; peduncle ½" to 1" - very slender - more slender than rachis; rachis thickened, dull green, divisions slender; pedicels 1/8" to 1/6" long, very slender having few small warts, receptacle enlarged when fruit is ripe.

Flowers: Minute, with all parts very delicate, more so than in any other species; stamens and petals mostly 5, pistil very slender, stigma scarcely visible to naked eye; in fertile flowers stamens reflexed; berries 1/6" to 5/16" in diameter, spherical, shining black with little or no bloom, persistent; skin thin, tough with bright red juice; contents juicy, without pulp, but a greenish matter attached closely to seeds, as in V. cordifolia; possessing a similar flavor with V. cinerea, pure sprightly, vinous; very acid until fully ripe, then sugary; ripe about with V. cordifolia, or earlier.

Seeds: 1 to 3, mostly 2, 1/8" to 1/6" long by 1/8" broad, similar in color to those of V. cinerea, but darker; beak very short, small, distinct, about the same color as body of seed; raphe visible from base of beak as a fine hair to notched top of seed where it disappears in a distinct groove, which enlarges moderately in back of seed, containing only a trace of chalaza, a faint groove extends from basin to beak; ventral depressions broad, distinct, diverging from beak, paler color than body of seed. The seeds from every locality of collection so far have chalaza depressed.

Plantlet: Seed leaves very small, narrowly ovate, acute green. Germination very late, foliation, flowering and ripening about with V. cordifolia.

In 1883-4 I received portions of vines with clusters of this peculiar little grape, among specimens of several other species, from Mr. James G. Wertz, of Salem, Roanoke Co., Virginia. ..... In October, 1889, I found a number of vines of this species along the borders of the Kanawha River in the vicinity of Kanawha Falls, West Virginia, and the same year reveived wood from Mr. J. K. Hoyt, of Buncombe Co., North Carolina, as the "Wild 'Possum Grape" which was grafted and grew, proving to be the same species. In September, 1890, Mr Hoyt sent me ripe fruit from other vines of the " 'Possum Grape" found wild in his vicinity, all being of this species. All plants of the species so far known to me grow along mountain streams at an altitude of 1500 to 3000 feet.

--- Foundations of American Grape Culture by T. V. Munson 1909

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V. Baileyana Possum Grape. Slender high climber, densely foliaged: leaves broad-ovate and cordate, mostly 3-lobed near apex, dull, at maturity pubescent on veins underneath: fruit ¼ inch or less in diameter, shining black. West Virginia to Georgia.

--Hortus Second, 1941

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Vitis Baileyana (cont.)

Leaves: Stipules minute, pale rusty; petiole mostly greater in length than half the width of blade, and 2/3 the length of midrib, cylindrical with a distinct narrow groove on upper side, green or pale red, with thin cottony pubesence; of nearly same diameter throughout; blade 2½" to 4" wide by 2½" to 4" from insertion of petiole to apex, cordate in general outline, rarely lobed more than to the extent of two unequal shoulders similarly with V. cinerea, basal sinus narrowly inverted V-shaped, with sides little curved; apex short taper-pointed; teeth irregular, small, short convex, obtuse with distinct mucron; ribs in 7 to 9 nearly opposite pairs, each terminating in the mucron of one of the larger teeth, scarcely at all pubescent, paler green that surface between; both faces generally devoid of pubescent hairs, above moderately wrinkled, not shining and not attacked by the Leaf-folder (Desmia funeralis); persisting to late in the fall.

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Flowers: Minute, with all parts very delicate, more so than in any other species; stamens and petals mostly 5, pistil very slender, stigma scarcely visible to naked eye; in fertile flowers stamens reflexed; berries 1/6" to 5/16" in diameter, spherical, shining black with little or no bloom, persistent; skin thin, tough with bright red juice; contents juicy, without pulp, but a greenish matter attached closely to seeds, as in V. cordifolia; possessing a similar flavor with V. cinerea, pure sprightly, vinous; very acid until fully ripe, then sugary; ripe about with V. cordifolia, or earlier.

Seeds: 1 to 3, mostly 2, 1/8" to 1/6" long by 1/8" broad, similar in color to those of V. cinerea, but darker; beak very short, small, distinct, about the same color as body of seed; raphe visible from base of beak as a fine hair to notched top of seed where it disappears in a distinct groove, which enlarges moderately in back of seed, containing only a trace of chalaza, a faint groove extends from basin to beak; ventral depressions broad, distinct, diverging from beak, paler color than body of seed. The seeds from every locality of collection so far have chalaza depressed.

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--- Foundations of American Grape Culture by T. V. Munson 1909

VITIS BERLANDIERI

V. berlandieri Spanish Grape. Stocky, moderately climbing: leaves cordate, often as broad as long, angled or 3-lobed toward apex, shining above and at maturity pubescent on veins underneath: fruit 1/3 inch or less in diameter, purple. Southwest Texas and Mexico.

--- Hortus Second, 1941

Vitis berlandieri, Planchon. Fromspecimens collected by Berlandier in Western Texas about 1883.

Synonyms:

V. aestivalis monticola, var. Engelm. in Am. Nat., 2, p.321
V. aestivalis, var. Gray, Pl. Wright, 1, p. 32
V. monticola, Engelm. Bushbery Cat. p.15, 1883
V. monticola, Millardet, Especes de Vignes, pp 199-204, 1885

"Little Mountain Grape", "Fall Grape", "Winter Grape", "Spanish Grape".

Plant: Rather stocky, with much the same habit as V. cinerea though more tapering and branched, climbing somewhat less, yet along streams going to tops of large trees, foliage of a bright, dark lively green color, and shining in light, its chief distinction from V. cinerea.

Roots: Little branching, wrinkled transversely, hard, deeply penetrating.

Wood: When young distinctly angled as in V. cinerea, covered with dull ashy pubescence and thin cottony hairs, the pubescence remaining through the first year, giving the dull brown, finely striated bark beneath an ashy appearance; wood rather soft; sectional view of annual wood porous, rays distinct, almost identical in structure and hardness with V. cinerea; nodes slightly bulged, much bent; diaphragm 1/12" to 1/10" in thickness, nearly plane; buds usually small and conical, sub-triangled, sometimes globose and cottony - like tip, unfolding, pinkish-crimson or salmon, tip closed; tendrils generally once, often twice forked, long, at first cottony and pubescent, then smooth, striated, red or green, persistent; internodes usually short, 2" to 4" long, often more, sometimes 6" or 7"; pith small, enlarged at lower end, light brown or nearly white.

Leaves: Stipules very small; petiole in length about ½ the width of blade, distinctly striated, groove very narrow and shallow, almost wanting, covered with a thin ashy cotton or closely set with a short velvety pubescence, or both, reddish or green, set at right or obtuse angle with leaf. Blade mostly 2" to 4" wide, sometimes 5" or 6", the length of the blade from insertion of petiole to summit, less by about 1/5 than its width; circular, slightly cupped toward upper face with margin bent back a little,- less so than V. arizonica; basal sinus usually inverted U-shaped, but also often inverted V-shaped, or acute at insertion of petiole shoulders usually not very prominent, apex short, acutely tapering; teeth short, small, convex with minute mucron;venation from the usually 6, sometimes 7 pairs of opposite, rather prominent ribs, covered with short, velvety pubescence;

(see over)

leaves when young, pinkish or green, thinly covered with short, delicate hairs, giving an ashy appearance, becoming smooth or slightly rugose, dark glossy green at maturity; the under surface between the ribs, thickly set with short, delicate cottony hairs, when young, smooth and glossy at maturity as if varnished; color dark green; texture dense, leathery; leaves from ground shoots of old wood usually 3 to 5 lobed, with rounded lateral sinuses quite similar in this respect to V. cinerea.

Clusters: Medium to very large, compact, with false tendril which sometimes becomes a secondary cluster, or shoulder; rachis once or twice compounded, pubescent or cottony, pale green; pedicels 1/5" to ¼" long, slender, enlarged at receptacle, warty.

Flowers: Fertile,-stamens recurved and bent laterally; ovary small, ovate, style slender; stigma small; staminate,- stamens long, slender ascending.

Berries: 1/5" to 1/3" in diameter, spherical, black or purple, sometimes red, little to much bloom, far more than in V. cinerea, a good distinction; skin thin; pulp melting, juicy, vinous, pure and sweet if allowed to hang till frost, - tastes much like fruit of V. cinerea.

Seeds: 1 to 3, usually 1; small to medium, 1/8"to 1/5" long by about the same broad; globular or broadly ovoid when only one in a berry; color grayish-coffee to light chocolate brown, wine or pale-purplish; beak very small, short; raphe is generally invisible or a fine thread, quite as prominent in Uvalde County specimens as in V. cinerea; chalaza usually flat or depressed, sometimes convex, ovate or roundish in center of back of seed or above, surrounded by a distinct groove which continues to, or over top of seed; ventral depressions commonly wide apart at the top, approaching a beak, broad, shallow, color light cinnamon, or nearly same as body of seed.

Plantlet: Cotyledons small, ovate, green, similar to V. cinerea; petioles medium long, 1/6" to ¼".

The species is found along the streams among the cretaceous hills of central Southwestern Texas, west of Brazos River to the Rio Grande and into Mexico, and is also abundant on the hillsides and hilltops of the same regions. It grows best in strong limy soils, but will also grow well in moist sandy lands.

--- Foundations of American Grape Culture by T. V. Munson, 1909.

VITIS BERLANDIERI

V. berlandieri Spanish Grape. Stocky, moderately climbing: leaves cordate, often as broad as long, angled or 3-lobed toward apex, shining above and at maturity pubescent on veins underneath: fruit 1/3 inch or less in diameter, purple. Southwest Texas and Mexico.

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"Little Mountain Grape", "Fall Grape", "Winter Grape", "Spanish Grape".

Plant: Rather stocky, with much the same habit as V. cinerea though more tapering and branched, climbing somewhat less, yet along streams going to tops of large trees, foliage of a bright, dark lively green color, and shining in light, its chief distinction from V. cinerea.

Roots: Little branching, wrinkled transversely, hard, deeply penetrating.

Wood: When young distinctly angled as in V. cinerea, covered with dull ashy pubescence and thin cottony hairs, the pubescence remaining through the first year, giving the dull brown, finely striated bark beneath an ashy appearance; wood rather soft; sectional view of annual wood porous, rays distinct, almost identical in structure and hardness with V. cinerea; nodes slightly bulged, much bent; diaphragm 1/12" to 1/10" in thickness, nearly plane; buds usually small and conical, sub-triangled, sometimes globose and cottony - like tip, unfolding, pinkish-crimson or salmon, tip closed; tendrils generally once, often twice forked, long, at first cottony and pubescent, then smooth, striated, red or green, persistent; internodes usually short, 2" to 4" long, often more, sometimes 6" or 7"; pith small, enlarged at lower end, light brown or nearly white.

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Flowers: Fertile,-stamens recurved and bent laterally; ovary small, ovate, style slender; stigma small; staminate,- stamens long, slender ascending.

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Seeds: 1 to 3, usually 1; small to medium, 1/8"to 1/5" long by about the same broad; globular or broadly ovoid when only one in a berry; color grayish-coffee to light chocolate brown, wine or pale-purplish; beak very small, short; raphe is generally invisible or a fine thread, quite as prominent in Uvalde County specimens as in V. cinerea; chalaza usually flat or depressed, sometimes convex, ovate or roundish in center of back of seed or above, surrounded by a distinct groove which continues to, or over top of seed; ventral depressions commonly wide apart at the top, approaching a beak, broad, shallow, color light cinnamon, or nearly same as body of seed.

Plantlet: Cotyledons small, ovate, green, similar to V. cinerea; petioles medium long, 1/6" to ¼".

The species is found along the streams among the cretaceous hills of central Southwestern Texas, west of Brazos River to the Rio Grande and into Mexico, and is also abundant on the hillsides and hilltops of the same regions. It grows best in strong limy soils, but will also grow well in moist sandy lands.

—— Foundations of American Grape Culture by T. V. Munson, 1909.

VITIS BETULIFOLIA

V. betulifolia Birch Grape. Good climber, leaves mostly rather small, ovate, shallow-cordate, to almost truncate at base, mostly not lobed or only angled, pubescent underneath: fruit small, blue-black. China.

—— Hortus Second, 1941

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VITIS BICOLOR

V. bicolor :- inapplicable name: see V. argentifolia

--- Hortus Second, 1941

V. bicolor Le Conte. Leaf blades thinnish, mostly longer than broad, 1-3 dm in diameter, 3-5-lobed, shallowly toothed, glabrous above, pale and very glaucous and glabrous beneath or the veins usually pubescent, glabrous or glabrate at maturity: panicles 5-10 cm long, commonly long peduncled: berry globose, 10-14mm in diameter, black beneath the bloom, rather sour but pleasantly tasted. (Summer Grape, Blue Grape, Winter Grape). Rocky woods and riverbanks, various provinces, North of Coastal Plain, Alabama to Missouri, New Hampshire and North Carolina.

-- Manual of the Southeastern Flora, by J. K. Small 1933

Vitis bicolor, LeConte, Proc. Acad. Phila. 1852, p.272, 1853
(Regensb. Flora, 36, 708.)

Synonym:
V. argentifolia, Munson. Proc.S. P. A. G. 1887, p.59, No. 15

"Fall Grape" in Illinois, "Blue Grape" in Ohio, "Winter Grape" in New York and Michigan.

Plant: Climbing moderately, 20 to 40 feet.

Roots: More fibrous and wiry than in other species of the series approaching V. vulpina, somewhat in this.

Wood: When young, cylindrical, smooth, crimson or reddish green; finely striated at maturity and of a clear dark reddish brown, having a light prunose bloom about the nodes, and occasionally scattering glandular spines, short and black, easily rubbed away; outer bark shedding second year in thin fibrous plates, permanent bark checked coarsely; annual wood dense, sectional view showing rays numerous, with small pores between; nodes slightly bulging and bent: diaphragm 1/10" to 1/8" thick, biconcave; bud broad at base, conical, acute, covered closely with reddish brown scales, beneath which is a layer of pale brown wool protecting the bud, whitish wool at summit, medium, pinkish or rosy in expanding, open tipped; tendrils intermittent, or occasionally several in succession. once or seldom twice forked, long smooth, red when young, brown when mature, persistent, clinging strongly. Internodes 3" to 6" or more long, sometimes 8" or 9"; pith rather large somewhat enlarged at lower end, light brown.

Leaves: Stipules minute, membranaceous; petiole, half the width of the blade in length, striated, usually smooth, with a very narrow pubescent groove on upper side, color generally red; blade 5" to 8", sometimes 10" to 11" broad by the same in length, broadly cordate or circular, or beautifully palmately lobed; basal sinus acute, spreading, generally inverted V-shaped, sometimes inverted U-shaped, with double curves, shoulders very prominent; 3 to 5-lobed, sinuses between lobes acute or rounded, lobes approaching; teeth of blade very shallow, convex, with small mucron, depressions between mostly acute, never scalloped;

(see over)

venation moderately prominent from the commonly 7 not quite opposite pairs of ribs, along which latter more or less light pubescence is found, becoming tufts in the forks, sometimes smooth; upper face smooth, of a lively dark green; lower face smooth, of a characteristic bluish-white appearance, caused by a prunose bloom or glaucous substance. Leaves from ground shoots of old wood usually beautifully 5 to 7 lobed.

Cluster: Fertile,- $2\frac{3}{4}$" to $5\frac{1}{4}$"or longer, generally slender, cylindrical, compact,with little or no shoulder; peduncle $1\frac{1}{4}$" to $2\frac{3}{4}$" in length; rachis smooth, covered thinly with a pale bluish-green; pedicels $\frac{1}{4}$" long, enlarging upward, warty, or knotty; staminate cluster much larger and diffuse.

Flowers: Very similar to those of V. aestivalis.

Berries: Generally $\frac{1}{4}$" to 1/3" in diameter, spherical, black, with heavy prunose bloom, making the fruit look bluish when ripe; persistent; pulp juicy and vinous sometimes, and a little astringent when fully ripe, even in best varieties, but exceedingly pulpy, dry and astringent in general.

Seeds: Small to medium, 1/6" to 1/5" long, by 1/8" to 1/6" broad, color from light to dark chocolate or slightly-burned coffee; beak short, fairly defined; raphe prominent in the groove, about filling it and continuing well defined nearly to the beak; chalaza rather below the middle of the back, prominent, or often sunken as in V. vulpina, nearly circular, surrounded by a distinct groove which extends over the broad top of seed; depressions broad, short, curved, shallow, of a lighter shade than body of seed, often salmon or chocolate color.

Plantlet: Cotyledons small, ovate, with short taper or acute point, green.

It is found in Michigan to 45 degrees North latitude, also in Ontario, Wisconsin, Illinois, Indiana, Ohio, Northern Kentucky, Western New York, and Pennsylvania; in New Jersey, Maryland and Northern Virginia, where it has more or less rusty tomentum on young leaves and wood, rarely in New York and New Jersey. The true rusty V. aestivalis of Michaux takes its place southward, from above named regions, especially in Georgia and Tennessee. The transition to V.aestivalis is gradual going South. It is found mostly in rolling, dry sandy, or alluvial clay soils mixed with sand, and especially loves sunny slopes.

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Cluster: Fertile,- 2¾" to 5¼"or longer, generally slender, cylindrical, compact, with little or no shoulder; peduncle 1¼" to 2¾" in length; rachis smooth, covered thinly with a pale bluish-green; pedicels ¼" long, enlarging upward, warty, or knotty; staminate cluster much larger and diffuse.

Flowers: Very similar to those of V. aestivalis.

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VITIS BLANCOII

Vitis blancoii, Munson

Synonyms:

V. Caribaea, Harvard Herbarium, Dr. E. Palmer, 1886.

Vine: Vigorous, climbing very high, foliage presenting a pale grayish-green aspect, in dense canopy on small trees.

Roots: Wiry, penetrating very deeply.

Wood: Growing tips extending rapidly beyond the slowly emlarging leaves, densely whitish, or pale rusty wooly, which wool persists during the first year; at first, wood is slightly angled,but becomes smooth cylindrical with maturity, pale dull green at first, very dark, reddish brown at maturity; outer bark sheds the second year slowly in narrow fibrous plates, leaving the true bark rough pale brown, which with age becomes finely divided lengthwise, as in V. cinerea, but of a darker color; wood rather soft, tough and uncommonly flexible; internodes 3" to 6" or more long in well grown canes, pith light brown, somewhat greater in diameter than the thickness of mature annual wood from pith outward, expanding and abruptly terminating above, but gradually below the diaphragm, which is about 1/16" thick, cross section of wood very porous; nodes little enlarged, or bent, stipular ridge not very prominent, and extending about half way around to base of tendril, then curving downward; tendrils 2" to 5" to fork, mostly bifid, white tomentose, very strong; buds small, at first subglobose, becoming at full maturity slightly triangular, but remaining blunt at apex, covered with dark brown scales, and rusty wooly at summit, in unfolding whitish or pale pink, tip closed.

Leaves: Stipules very small, rusty wooly; petiole 1" to 2" long, cylindrical, with distinct narrow groove along upper side, of uniform thickness the entire length, densely whitish wooly;blade long-cordate, entire, when fully grown 3" to 4" wide, with midrib 4" to 5" long; basal sinus inverted U or cupid's bow shaped (which is quite different from other species of this series, except sometimes the inverted U shape is found in V. Berlandiari; margin rarely slightly lobed or shouldered and finely toothed with sharp, mostly erect short teeth with a distinct mucron; apex generally very long taper-pointed; venation from the mostly 8 pairs of generally alternate ribs very depressed, and obscured above by thin cottony wool, and below by dense whitish, or ash-colored felt; upper face at full maturity bearing flocculent cotton along the ribs, giving foliage grayish aspect, elsewhere being a dark dull green with little or no wrinkling.

Cluster: Fertile, of medium size, 3" to 5" long; simple, with a shoulder or but little compounded, pedicels 2/16" to 3/16" long, slender, scatteringly warty, slightly enlarged at apex; staminate,- cluster somewhat larger.

Flowers: Very small and slender in all its parts.

Berries: Small ¼" to 1/3" in diameter, spherical, black, with thin bloom when ripe; skin thin, tough, not pungent, pulp juicy, pure sweet, vinous.

Vitis blancoii (cont.)

Seeds: 1 to 3, very small, as broad or broader than long, 1/8" long, globular when one in a berry, hemispherical when two; pale to dark chocolate colored; beak very short and broad, of darker color than body of seed; raphe very slender and obscure from beak to top of seed, where it becomes distinct in the notch in top, and rapidly expands into the nearly circular prominent chalaza in a very small shallow basin, a little above the center of the back of the seed, from chalaza a shallow groove extends down back of seed to the beak, the ventral depressions diverge widely from raphe, are short and distinct, of a lighter shade of color than body of seed.

Plantlet: Very similar to V. cinerea, in having small pale green cordate seed leaves, with acute tips, but with shorter petioles.

This species was first brought to my notice in 1887 by Senor Luciana Blanco, of Guadalajara, Mexico, who collected it for me repeatedly along streams in the Sierra Madra Mountains in the State of Jalisco, near the City of Guadalajara. In 1895 Mr. C. M. Stuart sent me specimens of it from near Montemorlos, State of Nuevo Leon, Mexico.

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Flowers: Very small and slender in all its parts.

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VITIS BOURQUINIANA

V. Bourquinia (V. aestivalis var. Bourquiniana, V. Bourquiniana) Southern Summer Grape. Young growth only moderately rusty as well as under surface of leaves, the covering mostly gray; fruit to 3/4 inch across and in large clusters. Cultigen. Herbemont, Lenoir and other vineyard varieties belong here.

-- Hortus Second, 1941

Vitis Bourquiniana, Munson.

Synonym:

Vitis aestivalis, Engelmann, Bushberg Cat. 7, p. 16, 1883

"Southern Aestivalis"

Two forms: a such as Herbemont, Lenoir, etc., with distinctly lobed leaves and mostly large compound clusters; and b with leaves only shouldered, each side the mid-lobe or top, and clusters simple such as Devereux, Rulander, etc.

Plant: Climbs vigorously to great height; when young procumbent, slender; foliage lively green until very late.

Roots: Very thick, deeply corrugated bark, moderately firm, penetrating deeply, and quite resistant to Phylloxera.

Wood: When young, green or pale red, smooth or with scattered hairs, cylindrical; bark of a pale cinnamon or reddish-brown color at maturity, obscurely striated, fibrous, true bark finely checked above ground, mature annual wood with a little prunose bloom about the nodes, and often a fine bristly, or short brown plush-like pubescence, as in Herbemont, is near the nodes; persistent; wood of medium density; more in a than in b; sectional view of annual wood oval or circular, rays numerous, pores small, nodes very large, bulging under and opposite the buds, much bent; diaphragm 1/16" (especially in b) to 1/12" or more thick (in a), slightly biconcave, less in b than in a, buds in a very broad at base, similar to Vinifera, globose, conical, covered with pale brown scales, or in b smaller, more conical and acute, with darker scales, large, rusty, pink in expanding; tendrils often twice forked in a, less so in b, long and strong in a, less so in b; internodes short, 1" to 3" or more, long; pith rather small, a little enlarged at lower end, light brown.

Leaves: Stipules small, short and broad, pale, thinly hairy; petiole half as long as width of blade, or less; generally cylindrical, obscurely striated and grooved, thinly or often densely pubescent in a; blade largest in a, 4" to 6" or more wide by 3½" to 5½" or more in length; in b 3½" to 4½" or more wide by 2½" to 3½" or more long; outline of blade in the Warren, group a, broad cordate, in the Devereux, group b, circular; basal sinus deep, acutely inverted V-shaped with curved sides which never or rarely lap; a generally 3 to 5 lobed, acute, with shallow, narrowly rounded sinuses, often having a convex tooth at base of sinuses, apex acute; b broad, obtuse, shouldered, apex broad, short, acute; teeth in both a and b distinctly raised, convex mucronate, with a yellowish-white mucron, notch between teeth acute, venation prominent from the thinly hairy or pubescent, sometimes 6 to generally 7 pairs of nearly opposite ribs, in the forks of which small

pubescent tufts are rarely found; young leaves in buds just expanding, pale green or pinkish, later whitish on both sides with silky white wool, never rusty, soon becoming smooth above and a little wrinkled, of a clear, lively dark green color, much paler beneath; texture dense. In a first true leaves small, ovate-acute, green; first year often lobed; in b first true leaves larger, green; on seedlings first year rarely lobed.

Cluster: In a medium to large, simple or compound, usually compact, heavily shouldered, with a false tendril on peduncle,- as in V. aestivalis and V. cinerea; rachis smooth; pedicels very variable, in Herbemont and many of its seedlings, thick, enlarging upwards, more slender in Jacquez and Devereux, enlarging towards receptacle, very warty in a, less so in b.

Flowers: Fertile,-on the majority of seedlings, with long, ascending stamens, rarely recurved, hence are productive without aid of other pollen; ovary small; style rather long and slender; stigma small.

Berries: Small, generally 1/3" to ½" in diameter, rarely larger, spherical, color mostly dark purple or pale red, and nearly white, as in Herbemont, Warren, Harwood and many seedlings grown by the writer; very persistent; a Herbemont often produces exquisite translucent, pearly white varieties from seed, rarely black, and almost all without coloring matter; skin very thin, pliable, tough; pulp very juicy and melting; some Herbemont seedlings are rarely a little meaty, as in Flame Tokay, of true V. vinifera; quality almost invariably fine, sprightly, vinous, and rich in saccharine matter.

Seeds: In a 1 to 3, small, 1/6" to 1/5" long, by 1/7" to 1/6" broad, ovate, dark chocolate color; beak small, well defined, short, rather blunt or quite sharp as in Jacquez; raphe usually prominent continuing distinctly to near the beak; in "Texas", a pure Herbemont seedling, the raphe is invisible from the chalaza till it reaches inner face of seed; chalaza large, circular or oval, convex or flat, rarely wanting, or nearly so, standing above middle of seed, in some pure Herbemont seedlings quite near or at the top (a V. vinifera characteristic) surrounded by a distinct groove which passes over top of seed; depressions shallow, nearly straihgt, close to raphe, of a lighter color than body of seed. In b, number of seeds usually 1 to 2, or 3, larger than in a, of a lighter color, usually same shape but more plump; beak small, well defined; raphe prominent in groove which passes to or over top of seed and continues distinctly to beak; chalaza large, circular, prominent but flat on top, surrounded by a distinct groove above center of seed, usually less elevated than in a.

Plantlet: Generally feeble, seed-leaves small, green, ovate, acute apex, petiole 1/8" to 1/4"

(Evidence presented by Mr. Munson indicates that Vitis Bourquiniana is probably of European origin.)

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Flowers: Fertile,-on the majority of seedlings, with long, ascending stamens, rarely recurved, hence are productive without aid of other pollen; ovary small; style rather long and slender; stigma small.

Berries: Small, generally 1/3" to ½" in diameter, rarely larger, spherical, color mostly dark purple or pale red, and nearly white, as in Herbemont, Warren, Harwood and many seedlings grown by the writer; very persistent; a Herbemont often produces exquisite translucent, pearly white varieties from seed, rarely black, and almost all without coloring matter; skin very thin, pliable, tough; pulp very juicy and melting; some Herbemont seedlings are rarely a little meaty, as in Flame Tokay, of true V. vinifera; quality almost invariably fine, sprightly, vinous, and rich in saccharine matter.

Seeds: In a 1 to 3, small, 1/6" to 1/5" long, by 1/7" to 1/6" broad, ovate, dark chocolate color; beak small, well defined, short, rather blunt or quite sharp as in Jacquez; raphe usually prominent continuing distinctly to near the beak; in "Texas", a pure Herbemont seedling, the raphe is invisible from the chalaza till it reaches inner face of seed; chalaza large, circular or oval, convex or flat, rarely wanting, or nearly so, standing above middle of seed, in some pure Herbemont seedlings quite near or at the top (a V. vinifera characteristic) surrounded by a distinct groove which passes over top of seed; depressions shallow, nearly straihgt, close to raphe, of a lighter color than body of seed. In b, number of seeds usually 1 to 2, or 3, larger than in a, of a lighter color, usually same shape but more plump; beak small, well defined; raphe prominent in groove which passes to or over top of seed and continues distinctly to beak; chalaza large, circular, prominent but flat on top, surrounded by a distinct groove above center of seed, usually less elevated than in a.

Plantlet: Generally feeble, seed-leaves small, green, ovate, acute apex, petiole 1/8" to 1/4"

(Evidence presented by Mr. Munson indicates that Vitis Bourquiniana is probably of European origin.)

--- Foundations of American Grape Culture, by T. V. Munson, 1909.

VITIS CALIFORNICA

Vitis californica Tall climber, leaves roundish to reniform, cordate, pubescent or floccose underneath, some of them 3-5-lobed but commonly not so; flowers very fragrant: fruit about 1/3 inch in diameter, purple and very glaucous. California.
---- Hortus Second, 1941

Vitis californica, Bentham, Bot. Sulp. 10

Synonym:
Vitis Caribaea, Hook and Arn. Bot., Beechey, 327

"North California Grape"

Plant: Climbing moderately, or vigorously, as seen by the writer in Santa Rosa and Napa Valleys at Chico and at Redding in Sacramento Valley, also at Grants Pass, Rogue River, Oregon; branches tapering; growing tips little elevated in expanding leaves; often the vines are seen completely enveloping small trees with a dense canopy of leaves.

Roots: Fibrous, rather soft, transversely wrinkled.

Wood: When young reddish or pale green, angled and somewhat covered with long whitish hairs, becoming floccose and remaining into the winter, or in Eldorado County specimens, covered with short brown pubescence, similar to V. cinerea; when mature, browning or grayish, finely striated, soft, sectional view circular or often oval, rays distinct, pores open; nodes large and a little bent; diaphragm nearly plane, medium thin; bark the second year easily loosening in fibrous plates, on old wood finely striately checked and persistent as in V. cinerea buds small, sub-pyramidal, ovoid or acute, covered with whitish or brownish wool at summit, when opening in spring grayish violet or nearly white, becoming greenish-violet; tendrils mostly once forked, sometimes twice, 3" to 5" to fork, intermittent, wooly when young, persistent, internodes medium in length, 3" to 6" or more, variable in same branch; pith large, light brown, abruptly and broadly terminating above, narrow and gradually terminating below the diaphragm, especially so in Sierra Nevada Mountain specimens.

Leaves: Stipules small to medium, cordate, membranaceous, hairy; petiole generally about half as long as blade is wide, narrowly grooved on upper side, distinctly striated; thinly covered with white cottony hairs and velvety pubescence, color violet or crimson; blade medium to large, varies in size from 2" to 4" in length by 3" to 5" or more in width; shape broadly cordate or nearly reniform; basal sinus acute or often obtuse, rounded; basal lobes more or less closed, often lapping; outline usually entire or 3 or rarely 5 shallow, obtuse lobes, with narrow rounded sinuses; summit rounded, or obtuse pointed, teeth medium broad, nearly regular, shallow, convex or with margins nearly straight, obtuse or right-angled, not mucronate; venation from generally 6 pairs of not guite opposite, very little elevated, pubescent ribs; pubescent tufts in forks, space between ribs thinly or not at all felted with silky hairs; upper face at first covered with whitish silky hairs, but soon becoming smooth; at maturity when about to shed, the leaves often change to bright orange red or scarlet. Leaves on first year not lobed.

Cluster: Fertile,- small 3" to 4" or more long; shouldered heavily, similar to many V. vulpina; compact; peduncle very short; rachis usually simple or little compounded, thinly cottony; clear reddish-violet; pedicels ¼" or less long, rather thick, enlarging rapidly toward the receptacle, warty.

Flowers: As I have never been able to grow the species here to bearing age, owing to sensitiveness to cold and mildew, I have not been able to study the flower sufficiently to give an exact description more than that they are much as in V. arizonica and in V. cinerea, very small and delicate.

Berries: 1/3" to ½" in diameter, round or little oblate, black, with heavy prunose bloom; persistent; skin rather thick, pulp seedy with little juice, very sugary and pleasantly flavored.

Seeds: 2 to 4, mostly 3, large 1/5" to ¼" long by 1/6" to 1/5" broad, obovate, of a light brown burnt coffee color, dull, not shining; beak large, short and blunt; raphe large, prominent, running over the rounded end of the seed and distinct down to base of beak; chalaza long-ovate, prominent, frequently salient above the surface of seed, flat or convex, surrounded by a shallow groove; ventral depressions short, shallow, about parallel with raphe, rather wide apart.

Plantlet: Seed-leaves medium to large, ovate or cordate, pale green with short petioles.

Natively it is found along streams, also on hillsides, along dry ravines, etc., in Middle and Northern California, especially in the Sacramento Valley and in the Rogue River Valley in Southwestern Oregon.

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Vitis californica (cont.)

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VITIS CANDICANS

V. candicans Mustang Grape. High strong climber, the young parts white-tomentose and leaves (which are broad-ovate and lobed only on vendurous shoots) remaining so underneath and dull above; fruit to $\frac{3}{4}$" across, purplish, pungent in flavor. Arkansas, Oklahoma, Texas.

--- Hortus Second, 1941

Vitis candicans. Engelmann, Gray's Pl. Lindh., 2:166, 1845. Pl. Wright, 1, p. 3 (fide Walp.

Ann. Bot. Syst. VII, p. 616. Am. Nat. Aug. 1868.

Synonym:

V. Mustangensis, Buckley, Pat. Off. Rep. 1861, p.482; Proc.Acad. Sci. Phil. 1861, p.451

"Mustang Grape" in Texas.

Plant: Vigorous, rampant, scarcely tapering, climbing the highest trees; making very long annual growth, sometimes 30 or 40 feet.

Roots: Very firm and most deeply penetrating of any species.

Wood: When young more or less angled, densely covered with whitish or yellowish dense to cobwebby wool, becoming floccose late in the season, persistent till second year. Bark on mature annual wood dull gray-brown, roughish with scattering wart-like blisters, finely striated; on old wood persistent, finely checked, fibrous; wood rather soft under the shears. Sectional view of annual wood cylindrical or oval; rays wide apart, pores between very large and open; nodes moderately enlarged, little bent; diaphragm 1/16" to 1/8" or more thick, nearly plane; bud small, globose or obscurely three-angled, conical, brown when opening, medium pinkish with white wooly covering. Tendrils when well developed nearly always twice forked, very large, strong, clinging well, wooly when young, smooth, pale brown and finely striated when mature; internodes medium to long, 2" to 6", sometimes 8" to 10"; pith medium, dark brown, slightly enlarged at lower end.

Leaves: Stipules of medium length, broad, blunt, crimson or pink, tomentose; petiole 2" to 3" long with indistinct groove, densely wooly; blade of medium size, varying in length of midrib from $2\frac{1}{2}$" to 5" or more, and in width from $2\frac{1}{2}$" to 6" or more, average length $3\frac{1}{2}$", average width 4", making a long cordate leaf if it were not so open, or nearly truncate at the base, which frequently makes it rounded - deltoid in outline and apparently broad for its length; basal sinus broadly inverted V shaped or truncate, an acute notch at insertion of petiole, even when base is truncate; entire or 3 to 5 lobed, border sinuses broad, rounded; summit and lobes right angled or acute; teeth short, usually slightly convex, sometimes scalloped from point, with mucronate point, notches between shallow, scalloped. One of the most striking characteristics of this species is the inverted saucer-like shape of blade, being convex toward upper face and attached to petiole at obtuse angle so that the dense foliage of the vine growing over the top of a bush or tree appears somewhat like a canopy shingled with concavo-convex leaves. Venation from the generally 7 opposite or nearly opposite pairs of ribs - each of which terminates a tooth direct, as in V.coriacea, - prominent, but obscured by the dense wooly felt on the under side, which in young leaves is nearly snow white, becoming dull ashy, never rusty with age, persistent; above, the young leaf is

covered thinly with whitish cobwebby hairs drawn along the surface which become flocculent in maturity and shed late in the season, leaving the upper face dark green, slightly wrinkled, similar to but less than in V. labrusca. Leaves on ground shoots of old roots always beautifully palmately 5 to 7, rarely 9 lobed; in seedlings 3 to 5 lobed till the third year, which is strikingly different from all other species, in which the leaves are almost entire on young plants.

Cluster: Fertile,- small, 2" to 3" long and nearly equally forked; peduncle short and weak; rachis hairy; pedicels long; staminate,- much larger, compound.

Flowers: Fertile,- petals before opening, - the flower bud - crimson; stamens very short, reflexed and curved laterally; pistil very large; ovary globose; style thick and very short, causing the large white hemispherical stigma to appear nearly sessile; sterile,- flower-bud same as in fertile but smaller, stamens medium strong, with large anther and abundant pollen.

Berries: 5 to 12 in cluster, large to very large, globular, black, very rarely red and still more rarely white; bloom none; skin thick, tough, possessed of a firey pungency, which renders fruit inedible, unless carefully removed; pulp tough, of a pleasant or rather insipid taste; between skin and pulp is a jelly-like juice sometimes red, sometimes transparent. Fruit persistent till very late, rarely if ever attacked by black rot. Berry separates from the pedicel with difficulty, the pedicel always drawing quite a core, white or crimson, with it from the berry.

Seeds: 2 to 4 of medium size, 1/5" to 1/4" long by 1/6" to 1/5" broad, ovoid when only one in the berry, rounded, not lobed, with a small well defined beak; color of unparched coffee with a brownish tinge; raphe very small, obscure or invisible, nearly imbedded in the ventral ridge; chalaza not very prominent, flat on top, ovate or elliptical, acute at insertion of raphe, center of chalaza rather lower than middle of seed, surrounded by a distinct groove which extends only to top of seed, depressions nearly straight, wide apart, much lighter in color than body of seed.

Plantlet: Caulicle and plumule crimson; seed leaves small, petiole $\frac{1}{4}$"; blade generally cupping upward around margin, just the reverse to full grown leaves on old vine; color dark green.

It ranges from the Arkansas River in Oklahoma southward in Western Arkansas, all Northern Texas as far northward as Clay County, southward through all Texas, east of the 100th meridian, and in Western Louisiana, and extends across the Rio Grande into Mexico, but so far have been unable to trace it into New Mexico, where it has been reported by some botanists. These were probably the species I have described as V. Doaniana. No specimens of it have been received from east of the Mississippi River, except in two instances, from the vicinity of Manatee, Florida, collected by J. H. Simpson. Dr. Engelmann reported it in Florida and mentioned nothing of V. coriacea there, but after the most diligent search, collection of specimens from many places and growing of seedlings of what was supposed to be there, only V. coriacea , which might be mistaken for it, save in the instances named above, was found. It would thus appear that Engelmann was correct in reporting in in Florida, though very rare there. It is found of immense size along the overflowed lands of the rivers, along sides and tops of the limy, cretaceous hills of Southwestern Texas, where it luxuriates, and along the wooded ravines of the black praries of Texas. It prefers a soil strong in lime, although it thrives in almost any soil. I have seen it with

Vitis candicans (cont.)

vines 3 to 6 inches in diameter at base extending into tops of cotton wood trees at least 100 feet tall, growing in Red River Bottom in this (Grayson) county.

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VITIS CARIBAEA

V. caribaea Strong high vine, leaves orbicular-ovate, cordate or truncate at base, apex short, not lobed, becoming dull above, rusty-tomentose underneath; fruit very small. Tropical America, doubtfully in the United States.

--- Hortus Second, 1941

Vitis caribaea, DeC. Prodr. 1, p. 634.

Synonyms; Numerous (see Ampelideae, Planchon, p. 331)

Plant: "Attains great size, climbing high, lives to a great age" (Dr. D Morris, Director Botanical Gardens, Kingston, Jamaica).

Roots: Not examined.

Wood: Annual, thick, angled and irregularly striated with a few shallow striae; growingtips not leafy and densely rusty tomentose; color dark chestnut, set with rusty wooly tomentum, becoming floccose, and with short, stiff pubescence near the nodes; outer bark separating in thin fibrous plates, and shedding second year, true bark in old vines checking fine, slowly shedding by small bits, persistent, much resembling V. cinerea, in body of vine, wood dense, tough, fibrous; sectional view of annual wood, rays numerous, thin, pores large abundant; nodes but little enlarged, slightly bent; diaphragm very thick, buds globose or subconical with rusty wool at the summit; tendrils once or twice forked, long striated, rusty-wooly when young, very strong; internodes medium to long, 4" to 5" or more; pith nearly twice the thickness of the wood, firm, insensibly passing into the diaphragm.

Leaves: Stipules minute, rusty-wooly; petiole about ½ the length of midrib, slender, rusty-tomentose or pubescent, narrowly grooved above, attached to blade at obtuse angle; blade in length about the same as in width or slightly more, averaging 4" to 5"; shape orbicular, cordate or truncate at base, plane; basal sinus shallow, broadly inverted V shaped or wanting, shoulders short-acute or wanting; apex, short, slender, acute; margin entire, smooth; teeth mere mucrons near together, with slight scallop between; venation from 6 or more, commonly 7 pairs of prominent, little rusty ribs, each of which ends directly in a mucron; nerves between the ribs also prominent; upper surface when young covered with cobwebby hairs which become flocose and disappear at maturity, leaving a dull green finely wrinkled surface in which the ribs are sunken; lower surface covered with thin layer of pale rusty felt-like tomentum, more rusty along the ribs; texture rather leathery.

Cluster: Fertile,- very large compound, generally lax in appearance, similar to V. Cinerea of Florida, but with shorter, more slender pedicels; peduncle medium, covered with dull rusty tomentum, rachis thinly rusty-wooly, its branches and their short subdivisions densely rusty-wooly; pedicels many, about 1/8" long, slender, smooth at flowering season; sterile,- not seen by writer, described by DeCandolle as exceeding the leaves in length, which would require a very large cluster.

Vitis caribaea (cont)

Flowers: Fertile,- minute, stamens erect or horizontal, nearly as long as the pedicels, disc large; ovary minute, globose-conical; style short.

Berries: Described by DeCandolle as very small, globular and glabrous. This description suits well the berries received from Jamaica and Honduras, Central America.

Seeds: 2 to 3, very small, ovoid, subcordate, chestnut color, beak short, raphe filiform, chalaza obovate or orbicular, in center of back of seed(DeCandolle), MacFadeyn Fl. Ham. p.181. Those obtained by me from Jamaica and Honduras agree with this description.

Distributed along the coast of Mexico, Central America and among the West Indies, but not in the United States.

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Roots: Not examined.

Wood: Annual, thick, angled and irregularly striated with a few shallow striae; growingtips not leafy and densely rusty tomentose; color dark chestnut, set with rusty wooly tomentum, becoming floccose, and with short, stiff pubescence near the nodes; outer bark separating in thin fibrous plates, and shedding second year, true bark in old vines checking fine, slowly shedding by small bits, persistent, much resembling V. cinerea, in body of vine, wood dense, tough, fibrous; sectional view of annual wood, rays numerous, thin, pores large abundant; nodes but little enlarged, slightly bent; diaphragm very thick, buds globose or subconical with rusty wool at the summit; tendrils once or twice forked, long striated, rusty-wooly when young, very strong; internodes medium to long, 4" to 5" or more; pith nearly twice the thickness of the wood, firm, insensibly passing into the diaphragm.

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Vitis caribaea (cont)

Flowers: Fertile,- minute, stamens erect or horizontal, nearly as long as the pedicels, disc large; ovary minute, globose-conical; style short.

Berries: Described by DeCandolle as very small, globular and glabrous. This description suits well the berries received from Jamaica and Honduras, Central America.

Seeds: 2 to 3, very small, ovoid, subcordate, chestnut color, beak short, raphe filiform, chalaza obovate or orbicular, in center of back of seed(DeCandolle), MacFadeyn Fl. Ham. p.181. Those obtained by me from Jamaica and Honduras agree with this description.

Distributed along the coast of Mexico, Central America and among the West Indies, but not in the United States.

— Foundations of American Grape Culture, by T. V. Munson, 1909.

VITIS CHAMPINI

V. champini. Robust climber; leaves reniform to very broad-ovate, cobwebby or pubescent when young but becoming dark glossy green above, lower surface pale and at first tomentose; fruit about ½" in diameter, black. Texas.
--- Hortus Second, 1941

Vitis Champini, Planchon

Plant: Robust, upright, climbing 30 to 40 feet high, with aspect somewhat between V. Doaniana and V. candicans, with more numerous lateral branches as in V. rupestris.

Roots: In one year seedlings axial, tapering downward; wiry, penetrating very deeply and fully resistant, rooting in the firmest very limy clay soils as well as in sandy land.

Wood: Growing tips less leafy than V. Doaniana, more than V. candicans covered with whitish tomentum which mostly disappears with maturity. Wood at first somewhat angled becoming cylindrical; at first green, becoming dark, dull reddish-brown; bark of old wood rather finely checked and persistent; on young wood after first year, flaking off easily, leaving surface beneath of a glossy reddish-brown color; wood firm; nodes swollen, straight; diaphragm 1/16" to 1/12", nearly plane; bud medium, subglobose when dormant, large rusty dark green when expanding; tendrils medium, 3" to 5" long, once forked, rarely twice, thinly tomentose; internodes 1½" to 4", finely and regularly striated; pith rather thicker in diameter than surrounding annual wood.

Leaves: Stipules 1/8" to 1/5" long by nearly as wide, broad sub-ovate; thinly tomentose, pale pink at first, browning after two or three days exposure in opening leves, petiole 1" to 2" long, cylindrical, with an obscure groove on upper side, thinly wooly; blade 2½" to 4" wide, midrib 2" to 3" long, broad cordate in outline; basal sinus broad, double curved, acute at insertion of petiole; margins rarely lobed, then only with slight shoulders; apex very short, acute; teeth broad, short, irregular, obtuse dentate, with small mucron, usually scalloped between teeth; venation from the generally 6 pairs of ribs; upper surface of blade at first thinly tomentose, becomming dark glossy green at full growth and slightly rugose; lower surface much paler, never glossy, thinly wooly, becoming nearly devoid of tomentum at maturity; foliage has less tomentum and is smaller than V. Doaniana or V. candicans.

Cluster: Fertile,- 1½" to 3" long, shouldered, shoulder half the length of the main part otherwise simple; peduncle generally as long as cluster; pedicels smooth, 1/16" to 1/20" long: staminate,- twice or more as large as the fertile, 3" to 4" long, shouldered, tomentose, greenish pedicels 1/12 tol/10" long.

Flowers: Fertile,- large stamens, short recurved, pollen impotent, pistil thick with short thick style and large stigma; staminate,- Stamens medium ascending, pollen very abundant.

Vitis champini (cont.)

Berries; Medium, round, black with thin or no prunose bloom when ripe; persistent; skin rather thin, tough, possessed of abundance of coloring matter, little pungency; pulp generally juicy, melting, of rich agreeable flavor, but lacking in sugar.

Seeds: 1 to 3, 1/6" to ¼" long by 1/7" to 1/6" broad, obovoid when but one in the berry; beak short, small or blunt; raphe extends from beak as a very slender imbedded thread or hair in the elevation between two rather deep, nearly parallel ventral depressions which lie close along it,becoming invisible as it passes in the slight groove over the top of the seed and passing gradually into the narrow, elongated, sunken or slightly elevated, chalaza, located in the center of the back of seed, or a little above, thence a slight groove extends to the beak.

Plantlet: Seed-leaves, petiole 1/6" to ¼"; blade medium, broadly elliptical, acute summit, green, plumule and caulicle crimson; rather vigorous, declining or partly upright first year; leaves always entire on young vines.

This species occurs naturally in Johnson, Llano, Lampasas, Bell, Mills, and other counties of Texas.

--- Foundations of American Grape Culture, by T. V. Munson, 1909.

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--- Foundations of American Grape Culture, by T. V. Munson, 1909.

V. cinerea. Rocky Woods, prairies. Very left shoots, Sum. Sept.
broad rots, more or less 3-angled or 3-lobed, [illegible] and [illegible] [illegible]
at maturity, under surface whitish-felted, pistil [illegible] and on the
[illegible] drawer, flake or purple [illegible] appressed fibers. Ill. Florida to
Texas, north to Nebraska and Iowa. Harlan Bernard (1941)

V. cinerea Engelm. Leaf blades thinner, mostly larger than
broad, 7-25 cm in diameter, shallowly 3-lobed, rounded entire,
or distinctly angulately 3-lobed near the apex, sinuately-toothed
glabrous and reticulate in age, more or less copiously pubescent
beneath with ashy or dark brown velvety hairs, sometimes at the base!
panicles 1.5-3 dm long, usually drooping; berry-like pistil, 12-24
mm in diameter, black, barely glaucous, rather numerous. (Dorney-
Grape, Sweet Water-Grape) - Woods and stream-banks, common
throughout, Florida to Texas, Nebraska and Illinois.
Manual of the Southeastern Flora by J.K. Small 1933

V. vorgatica (f. hirsuta) of Nuttall, Very tall, long-petiolate rose, highly colored in autumn, have leaf-forms varied under-surface, rusty-pubescent, often showing a whitish blush, dull above and gray-or hairy-tomentose underneath, fruit about ½ inch in diameter. Hot and Fens. Japan

Harlan Harvey H.

V. cordifolia V. radicans

Martius Rusby (1941)

V. cordifolia Ell. Leaf blade thin, dull green, longer than broad commonly ovate in outline rarely 3- lobed or 1-angled near the apex rather coarsely and irregularly toothed, glabrous or sometimes sparingly pubescent terminal stem pump, more or less deeply cordate at the base (persistent and entire — V. caulorhiza temporaria); panicles 1-3 dm. long, commonly drooping berry globose, 8-10mm in diam. Flowers under a Sept. Nov., pleasantly scented, persistent. (Frost grape, Chicken Grape) — Woods, thickets and stream banks various provinces, Florida — Texas, Nebraska, Missouri and New York

Manual of the Southern Flora by J K Small 1933

V. [illegible] V. [illegible]

Flora [illegible]

V. [illegible] [illegible] Leaf-blades numerous, 5 or more, in a rosette, 5-10 cm. broad, shallowly cordate, especially [illegible] [illegible] of the [illegible] deeply lobed) [illegible] [illegible], finely [illegible], cordate or [illegible] sub-cordate; petioles 5-15 cm long. Seeds subglobose, less than 1.2 mm in diameter [illegible] - Hammocks, peninsula of Florida

Manual of the Southeastern Flora by J.K. Small 1933

V. Davidii (Opuntia Davidii) Separate pretty slender
branches large and hairy. Found near mouth in the night of
thursday blue round cave, dull red above and glaucous underneath
fruit about ½ inch in diameter. Lois

Marble Canyon 1911.

K. dominica, Lejeune & Cortier. Leaves minute, tip very acute, [illegible] and [illegible], [illegible] obovate. Flowers [illegible] Fruit [illegible] Flask with [illegible] Oklahoma & New Mexico. Rhizome a [illegible] of [illegible] cuticle; hardy in northern states.

Charles Reed (Sc.)

V. Grease Cracks passed under dam [illegible]
[illegible] with [illegible] in early [illegible], a
[illegible] shining above and [illegible] on [illegible] just about
[illegible] with [illegible] flat. Grease [illegible] in [illegible] in [illegible]
[illegible] under the dam Fresh [illegible] 1911

V. bicolor Stiff shoots differ from Cuneifolia in
hairs gray, not dusky white [illegible] [illegible]
[illegible] and more [illegible] [illegible]
flower shoots, [illegible] [illegible] [illegible] [illegible] [illegible]
often near the sea Mark Rand (1901)

V. Kaempferi V. erigenetae
Martin Lennard (1941)

Insert V. Helleri
V. Illex

per Bishop Gerald Hutchinson

V. labrusca Fox grape. Strong climber with intermittent tendrils. Large leaves, broadly cordate-ovate and thin, obscurely 3-lobed toward apex, upper surface dull, under surface dull whitish or rusty brownish; panicle [illegible] in a cluster, 3½ inch or less in diameter; purple-black with strong foxy flavor. Vine lofty and vine forks & hangs also in bottom forests.

Harlan Ricord (1941)

V. labrusca L. Leaf blades thickish, subcordate to broadly ovate, usually longer than broad, shallowly toothed or scallopy, thinnish entire, or 3-lobed [illegible] the vine, glabrate above, densely tomentose or felty beneath, panicles 5–12 cm long, usually simple: berry globose, 1.5–2 cm in diameter, amber to purple, with a slight bloom, the skin and tough pulp sweet and musky or astringent (Fox-grape, Chum-grape) thickish and woody, various forms, hedges & thickets, Md. and Ontario.

Manual of the Southeastern Flora by J K Small 1933

V. vulpina labrusca Linnaeus

Synonyms: V. Lincecumii, Nelson
V. palmata, pulchra and tenuifolia, L. Coste
V. bracteata L. Coste

"Fox grape" "Northern Muscadine" "Swamp grape" in Tennessee.

Plant: [illegible] climbing 20 to 40 feet or more, large expanding above, barrier the climbing tip of [illegible] in appearance

Roots: Spreading rather soft and fleshy, not deeply penetrating.

Wood:

[illegible]

V. Lacinia (wings or spines)
Weak (Brand 1891)

V. Lucieomii Pitcher plant, much like V. aureola but a more sturdy grower, leaves larger and [illegible] transverse underneath and frequently not wavy; fruit larger, sometimes 1 inch in diameter, black or dark purple and with thick stem. Rocky woods, Indiana, Louisiana and Texas — Flowering as planted from nursery and greenhouse.

Harris Beard (1941)

V. Lucieomii Rugel. Leaf blade green, as long as long or a little longer than broad, 3-lobed and toothed, cordate, glabrate above, densely coloured or glabrate beneath, (glaucous-blue beneath, except the nerves in V. Lucieomii latior); fruiting 5-12 cm long, very conspicuous, mostly 12-25 mm in diameter, black beneath the thorn, glaucously dotted. Dry woodlands, ravines, pastures, Tennessee to Louisiana, Texas and Missouri.

Manual of the Southeastern Flora by J. K. Small 1933

Vitis longii (V. solonis) Bush grape. Stocky vines [illegible] bushy and erect, young parts floccose. Leaves broad reniform & [illegible], very coarsely dentate. [illegible] [illegible] [illegible] [illegible], [illegible] [illegible] pale and pubescent [illegible] [illegible] fruits [illegible] [illegible] [illegible]. [illegible] and [illegible] Oklahoma [illegible] Kansas, North Texas and southern Colorado.

Herbarium [illegible]

✓ montícola Small mountain grape. Berries [illegible]. Leaves rather small, usually [illegible] in [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] 3-5 in. showing light green above and velvet green beneath [illegible] [illegible]. [illegible] [illegible] [illegible] Texas. — [illegible] [illegible] (1911)

V. munsoniana Bird Grape. A muscadine grape differing from V. rotundifolia in being a more slender, [illegible], continuously flowering or fruiting, leaves less pointed and smaller [illegible] and bearing [illegible] South Florida; likely to be planted or escaped in this region.

— Martin Sessoms (1[illegible])

V. munsoniana (Simpson), Bush. Leaf-blade thinnish but rather firm, subcordate or reniform, [illegible]-8 cm broad, coarsely toothed, glabrous, except the axils of the vein beneath, persistent, [illegible] at the base; berry globose, 1–1.5 cm in diameter, nearly black under a light-[illegible] or [illegible], the skin and pulp tender, acid; seed 3–5 mm long.

[illegible] Vitis peltata Raf.] — (Bullace-Grape) — Hammocks and scrub, Florida and Georgia (N. D.) [illegible] or all year South.

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V. novae-angliae. Throughout native Maine to Vermont and Connecticut. Probably not cultivated outside botanical collections but it is to be distinguished from V. rugosum leaves round or cuneiform ovate, only obscurely or shallowly lobed the teeth less prolonged, more pubescent underneath; fruit about 3/4 inch long in clusters; black berries and glaucous.

Hunter Record (1941)

V. palmata (V. labra) Red or lattice grape. Tall glabrous climber, the branchlets and petioles red. Leaves rather small, rotundate and long pointed 3-lobed; fruit about 1/3 inch across black. Delicious to bear: hardy north.

Charles Ravenel (1941)

V. palmata Vahl. Leaf blades thin, deeply 3-5 lobed and very coarsely toothed, green and glabrous on both sides or glaucescent beneath and [illegible] pubescent on the veins, [illegible] of the Tree panicles 5-12 cm. long, slender; berry subglobose, 7-10 mm in diameter, black, dulcite; any form (Red-grape lat-grape) Sandy banks and rocky places, rarely prairies, Tennessee to Louisiana, Texas and Indiana.

V. [illegible] Shrub with young branches [illegible] bark [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] shrub. Blooms, early in [illegible] [illegible]

[illegible] [illegible]

V. [illegible]. Shrubs with gray stem [illegible]
[illegible] usually highly lobed or [illegible]
with 0-5 veins or [illegible] with [illegible]
[illegible]; fruit about [illegible] in [illegible]. Flor. [illegible]
Virginiana (V. [illegible]) [illegible] and [illegible]
[illegible] in many [illegible]. [illegible]

Morris Rusby (1891)

V. pickles. [illegible]

[illegible]

V. [illegible] Williams

V. [illegible] V. [illegible] (Ward) Rhizoids pale hyaline [illegible]
prophyll on [illegible] stems [illegible] perhaps on rare [illegible]
surface of the bread-root [illegible]. The large [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]
and [illegible]. [illegible] [illegible] [illegible] and Tennessee and Texas
(Austin County) (Ward)

V. rotundifolia (Muscadinia rotundifolia) Muscadine, Bullace grape.

Lvs. strong climber with bark not shredding and tendrils simple; leaves nearly orbicular to very broad ovate, short pointed, thin, glabrous or essentially so underneath; in small clusters, long cluster-stems, with or lacking in branches; dull purple, skin-thick and pulp strong flavored. Delaware to Florida, Kansas to Texas — there are a number of vineyard varieties, the Scuppernong being one few great.

Harlan Lewis (1911)

V. rotundifolia (Mich.) Small. Leaf blades firm or leathery, orbicular to ovate-orbicular, 4-9 cm in diameter or larger, [illegible], acuminate, coarsely toothed, glabrous, except the axils and sometimes the veins beneath, [illegible]; berry subglobose, dull purple, without bloom, with [illegible] pulp, the tunicate globular. — (Muscadine, Southern fox grape, Scuppernong) thickets, swamps, riverbanks and hammocks, [illegible] pervasive. Florida to Texas, Kansas and Delaware — (Mich.) — Sept. to Oct.

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V. rufotrunctra Radlkofer [illegible]

[illegible] petioles, margins [illegible] or notched; [illegible] than 1/4-inch in [illegible], [illegible]

(Hunter Record 1941)

V. rufotrunctra Rusby. Leaf blades subcoriaceous to sub-orbicular, 10-50 cm long & sometimes [illegible], dull green above, finely and closely tomentose on the veins, otherwise [illegible] branch, especially rusty on and about the veins, rather coarsely and irregularly toothed, cordate at the base; panicles rather small, or ample, sometimes 2.5-3 dm long; pedicels much shorter than the panicles; berry black, with little or no bloom, flat 5-6 mm in diameter. (Wild-grape) Hammocks, Crystal River, Florida & Louisiana

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V. superstris (Sand grape). Rarely sometimes somewhat climbing glabrous, tendrils often [illegible] well, nearly or quite reniform, coriaceous, rarely slightly [illegible] at all lobed, fruit ½ inch or less in diameter, purple, - black, and [illegible] glaucous. Rio Grande in Florida and Mississippi to Tennessee and Texas, and barely when planted farther north

Harris Record (1941)

V. rupestris, Scheele. Stems 1-2 m tall; leaf blades commonly brown the long, reniform to ovate-reniform, 4-10 cm in diameter, coarsely toothed and rarely slightly, and sometimes somewhat irregularly, lobed and with an abrupt tip at the apex [illegible], glabrous or [illegible] pubescent on the [illegible], [illegible] glaucescent on both sides; panicles 2-10 cm long, slender and diffuse; fruit subglobose, 7-4 mm in diameter, purple black, [illegible] glaucous [illegible]. (Sand grape. Dry [illegible] Rivulets and hillsides, rocks [illegible], [illegible] of coastal plain, Tennessee to Texas, Missouri, Pennsylvania and Iowa.

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V. Rhodhamnoides (A. coriacea Fuc. & Mich.) Leaves [illegible]
Reflexion rare. Nib rusty spray pencil, leaves usually [illegible]
5 paired-veins, stouter, stalked, coarsely toothed and [illegible]
shallowly lobed, upper surface shining and hairy, lower
densely felted; fruit [illegible] about ½ — ¾ in. diameter. Flowers
Bonds Parade. Charles Sprague 1901

V. Rimpsonii (V. vinacea var. floridana, V. australis) Currant-like
allied to V. australis but leaves gray-rusty and pubescent rather than
rusty; with usually smaller panicles rather than lobes, and very small,
fruit current like in [illegible] bore clusters, Florida Georgia

Charles Reeves (1941)

V. Rimpsonii: Shrubs. Leaf blades pubescent on outset. 5-16 cm broad
prominently or rarely deeply 3-5-lobed and shallowly lobed, glabrate
above, more or less densely tawny or rusty-tomentose beneath, cordate;
panicles 5-16 cm long, usually compact; berry commonly 15 mm in
diameter, black, mostly glandular - bristly hairs especially in scurf and
no skin wounds, peninsular & Florida

Manual gives Pubescent Flora by J. K. Small 1933

V. Auctiae Taylor [illegible] [illegible] [illegible]
previously known as V. Europeum, [illegible] [illegible]
deeply [illegible] lobed and with rounded [illegible], [illegible]
[illegible] than ½ inch in length on [illegible] [illegible] [illegible]
Tahiti

Martin Ricord [illegible]

V. [illegible] [illegible] [illegible] the [illegible] plant [illegible] [illegible]
in V. [illegible] : leaves [illegible] [illegible] [illegible] with [illegible]
terminating with [illegible] ; [illegible] black [illegible] of [illegible] in [illegible].
[illegible] [illegible] (1911)

V. thunbergii. Plants shrubs very prickly and very purpure of leaves rusty-tomentose. Corolla [illegible] 2-3 lobed usually with numerous minute glandular [illegible] in diameter. Black and flavum. Stems thorny and

Thorbs [illegible]

Mikado Vitis Vulpina at the front

V. vulpina. Wild grape. The cultivated grape — Fruit and of Lindley and also of Lobgamin, in many parts, moderately clustered; leaves usually cordate-ovate or nearly orbicular rather thin, with deep narrow sinus, coarsely toothed, 3-5-lobed with narrow, obtuse lobes, pubescent both surfaces or sometimes tomentose underneath; fruit variable in size, juicy and sour, the skin adhering to the pulp. Probably of the Canadian region. V. aestivalis (V. laciniata) is a cut-leaved form. V. riparia is a cut-leaved or compound-leaved report of the rarely character leaf (of [illegible]) but it has been confused apparently with Ampelopsis aconitifolia.

Herbert Stroud (1941)

V. Vinieriana Somewhat fleshy very strong vine with [illegible] stem
stout and young shoots and under leaf surfaces pretty and usually
brownish; leaves digitate with 3 or 5 large hooked stalked leaflets;
tendrils very long simple; flowers in cymes; fruit large and E. Asia
Planted for ornament in So Florida and So. California
Charles Sprague (1941)

Gr. called Ampelopsis parke - specimen
in BH # 7

V. vulpina (V. candicans) Frost Grape. Very large, high climber; leaves broad-ovate, the cordate sinus narrow, rarely not lobed, shining above, pale underneath but becoming glabrous except perhaps on veins; fruit 1/3 inch or less in diameter, dull black. Pennsylvania to Florida, Kansas and Texas. See also V. riparia.

Harlin Record (1941)

V. vulpina L. Leaf blades thin, commonly broader than broad, 5-20 cm broad, mostly sharply 3-lobed and coarsely and irregularly toothed, glabrate or pubescent on and about the veins beneath, cordate or nearly truncate at the base, the teeth and lobes acuminate; panicles 6-20 cm long, often much branched; berry globose, 8-10 mm in diameter, very dark with a copious bloom, the pulp sour. (Riverside Grape, Frost Grape) Rocky banks and along streams, ravines, hammocks, rarely Coastal Plain, Alabama to Mississippi, Colorado, Manitoba, New Brunswick and Maryland

Manual of the Southeastern Flora by J.K. Small 1933

V. Nelsonii (V. reticulata) High climber with grey-green inflorescence; leaves broad-ovate, at first reddish, not lobed, becoming glaucous above, cobwebby on veins underneath and reticulate; fruit about 1/3 inch across, glaucous. China

Hector Cowan (1941)